

AMENDMENTS TO THE CLAIMS

1. (Original) An article comprising:

a metallic substrate; and

a substantially single-phase coating disposed on said substrate, wherein said coating comprises nickel (Ni) and at least about 30 atomic percent aluminum (Al), wherein said coating further comprises a gradient in Al composition, said gradient extending from a first Al concentration level at an outer surface of said coating to a second Al concentration level at an interface between said substantially single-phase coating and said substrate;

wherein said first Al concentration level is greater than said second Al concentration level and said second concentration level is at least about 30 atomic percent Al.

2. (Original) The article of claim 1, wherein said coating further comprises at least one of chromium (Cr), zirconium (Zr), up to about 20 atomic percent cobalt (Co), and up to about 20 atomic percent iron (Fe).

3. (Currently amended) The article of claim 2, wherein said coating comprises Cr, and wherein said Cr is present at a concentration of up to about 15 atomic percent.

4. (Original) The article of claim 3, wherein said Cr is present at a concentration in the range from about 4 atomic percent to about 12 atomic percent.

5. (Currently amended) The article of claim 2, wherein said coating comprises Zr, and wherein said Zr is present at a concentration of up to about 2 atomic percent.

6. (Original) The article of claim 5, wherein said Zr is present at a concentration in the range from about 0.2 atomic percent to about 0.8 atomic percent.

7. (Original) The article of claim 2, wherein said coating further comprises at least one element selected from the group consisting of hafnium (Hf), yttrium (Y), silicon (Si), titanium (Ti), lanthanum (La), cerium (Ce), and tantalum (Ta).

8. (Original) The article of claim 7, wherein said at least one element is present at a concentration of up to about 3 atomic percent.
9. (Currently amended) The article of claim 2, wherein said coating further comprises up to about 0.1 atomic percent of ~~at least one of~~ carbon and up to about 0.1 atomic percent boron.
10. (Original) The article of claim 1, wherein said coating has a thickness of greater than about 10 micrometers.
11. (Original) The article of claim 10, wherein said thickness is in the range from about 10 micrometers to about 100 micrometers.
12. (Original) The article of claim 11, wherein said thickness is in the range from about 25 micrometers to about 75 micrometers.
13. (Original) The article of claim 1, wherein said substrate comprises at least one of a nickel-based alloy, a cobalt-based alloy, and an iron-based alloy.
14. (Original) The article of claim 13, wherein said substrate comprises a superalloy.
15. (Original) The article of claim 14, wherein said substrate comprises a component of a gas turbine assembly.
16. (Original) The article of claim 15, wherein said component comprises at least one of a turbine airfoil, a turbine disk, and a combustor.
17. (Original) The article of claim 1, wherein said single phase of said coating comprises a B2-structured nickel aluminide (NiAl) phase.
18. (Original) An article comprising:
- a metallic substrate;
- a substantially single-phase B2-structured nickel aluminide coating disposed on said substrate, wherein said coating comprises Ni, Cr, Zr, up to about 20 atomic percent Co, up to about 20 atomic percent Fe, and at least about 30 atomic percent Al, wherein said coating

further comprises a gradient in Al composition, said gradient extending from a first Al concentration level at an outer surface of said coating to a second Al concentration level at an interface between said substantially single-phase coating and said substrate;

wherein said first Al concentration level is greater than said second Al concentration level and said second concentration level is at least about 30 atomic percent Al.

19. (Original) A coating for protecting an article, said coating comprising:

a substantially single-phase coating disposed on a substrate, wherein said coating comprises nickel (Ni) and at least about 30 atomic percent aluminum (Al), wherein said coating further comprises a gradient in Al composition, said gradient extending from a first Al concentration level at an outer surface of said coating to a second Al concentration level at an interface between said substantially single-phase coating and said substrate;

wherein said first Al concentration level is greater than said second Al concentration level and said second concentration level is at least about 30 atomic percent Al.

20. (Original) The coating of claim 19, further ~~comprises~~ comprising at least one of chromium (Cr), zirconium (Zr), up to about 20 atomic percent cobalt (Co), and up to about 20 atomic percent iron (Fe).

21. (Currently amended) The coating of claim 19, wherein said coating comprises Cr, and wherein said Cr is present at a concentration of up to about 15 atomic percent.

22. (Original) The coating of claim 21, wherein said Cr is present at a concentration in the range from about 4 atomic percent to about 12 atomic percent.

23. (Currently amended) The coating of claim 20, wherein said coating comprises Zr, and wherein said Zr is present at a concentration of up to about 2 atomic percent.

24. (Original) The coating of claim 23, wherein said Zr is present at a concentration in the range from about 0.2 atomic percent to about 0.8 atomic percent.

25. (Original) The coating of claim 20, wherein said coating further comprises at least one element selected from the group consisting of hafnium (Hf), yttrium (Y), silicon (Si), titanium (Ti), lanthanum (La), cerium (Ce), and tantalum (Ta).

26. (Original) The coating of claim 25, wherein said at least one element is present at a concentration of up to about 3 atomic percent.

27. (Currently amended) The coating of claim 20, wherein said coating further comprises up to about 0.1 atomic percent ~~of at least one of~~ carbon and up to about 0.1 atomic percent boron.

28. (Original) The coating of claim 19, wherein said coating has a thickness of greater than about 10 micrometers.

29. (Original) The coating of claim 28, wherein said thickness is in the range from about 10 micrometers to about 100 micrometers.

30. (Original) The coating of claim 29, wherein said thickness is in the range from about 25 micrometers to about 75 micrometers.

31. (Original) The coating of claim 19, wherein said single phase of said coating comprises a B2-structured nickel aluminide (NiAl) phase.

32. (Original) A coating for protecting an article, said coating comprising:

a substantially single-phase B2-structured nickel aluminide coating disposed on a substrate, wherein said coating comprises Ni, Cr, Zr, up to about 20 atomic percent Co, up to about 20 atomic percent Fe, and at least about 30 atomic percent Al, wherein said coating further comprises a gradient in Al composition, said gradient extending from a first Al concentration level at an outer surface of said coating to a second Al concentration level at an interface between said substantially single-phase coating and said substrate;

wherein said first Al concentration level is greater than said second Al concentration level and said second concentration level is at least about 30 atomic percent Al.